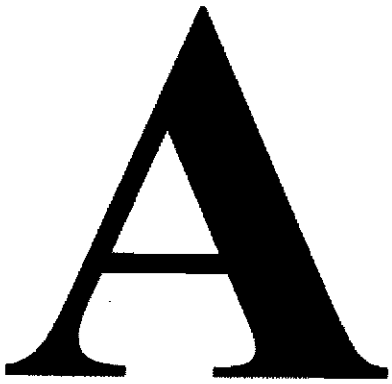

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Expert Witness Report of Robert D. Morrison

United States Fidelity and Guaranty Company et al. v. Soco-West, Inc., Brilliant National Services, Inc. (f/k/a Brenntag, Inc.), Stinnes Corporation and Brenntag (Holding) N.V.

United States District Court
District of Montana
Billings Division
Cause No. CV-04-29-BLG-RFC

Prepared for

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EXHIBIT 2500 DEPO OF Morrison
DATE 1/4/06
CYNTHIA DEPWEG, CSR #1280

DEFENDANTS' 3/23/06 MOTION IN LIMINE # 3

ATTACHMENT A

Expert Witness Report of Robert D. Morrison

Introduction

This expert witness report was prepared at the request of plaintiffs' counsel in the matter of *United States Fidelity and Guaranty Company et al. vs. Soco-West, Inc., Brilliant National Services Inc. (f/k/a Brenntag, Inc.), Stinnes Corporation and Brenntag (Holding) N.V.*, United States District Court, District of Montana, Billings Division Cause No. CV-04-29-BLG-RFC. This matter involves the contamination of soil and groundwater at and adjacent to a facility operated by Brenntag West (formerly Dyce Chemical, Inc.,) (defendants) facility (site) located at 1353 Taylor Place in Billings, Montana. The facility is a chemical re-packaging, blending and distribution company at which defendants have reportedly operated since approximately late 1972.[1,2]

The primary contaminants of concern in this matter are the chlorinated solvents perchloroethylene (PCE), trichloroethylene (TCE), dichloroethylene (DCE) and vinyl chloride (VC).[2] These contaminants are present in the soil and groundwater at the site. Perchloroethylene is a parent compound which degrades sequentially to TCE, DCE and vinyl chloride.

This report provides opinions regarding the nature and distribution of subsurface contamination at the facility, the origin of these contaminants and timing of the releases. Information relied upon in forming these opinions is summarized in Attachment A and includes environmental reports, correspondence, chemical test results, deposition transcripts and exhibits, aerial photographs and regulatory files.

My resume is contained in Attachment B. I have been an environmental consultant for over 30 years and have a B.S. in Geology, an M.S. in Environmental Studies, an M.S. in Environmental Engineering and a Ph.D. in Soil Physics from the University of Wisconsin at Madison, Wisconsin. I am currently employed by DPRA, Inc., which is an environmental consulting firm. My primary area of academic and professional interest is the application of environmental forensics for contaminant age dating and source identification.

Opinions

The following opinions are based on my review of information listed in Attachment A and my professional experience.

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[1] Brenntag West, Inc., Brilliant National Services, Inc., Stinnes Corporation, and Brenntag (Holding) N.V.'s Answer, and Brenntag West, Inc., Counterclaim Against Continental Insurance Company. October 1, 2004. United States Fidelity and Guaranty Company and Continental Insurance Company v. Brenntag West, Inc., et al.

[2] Proposed Remedial Action Plan Lockwood Groundwater Solvent Plume Site, Billings, Montana. Montana Department of Environmental Quality. United States Environmental Protection Agency. D069589-069612.

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Opinion 1. Insufficient information exists to age date the release of chlorinated solvents at the site.

Opinion 2. Subsurface contamination at the site is the result of routine storage and handling practices.

Opinion 3. The distribution of subsurface contamination at the Brenntag West facility is inconsistent with a single release of PCE.

Basis for Opinions

Opinion 1. Insufficient information exists to age date the release of chlorinated solvents at the site.

Insufficient information is available to scientifically age date the release of chlorinated solvents at the site. Forensic techniques for age dating chlorinated solvents exist and are well documented in the scientific literature. Age dating techniques include isotopic analysis using the isotopic ratios for carbon ($^{13}C/^{12}C$) and chlorine ($^{37}Cl/^{35}Cl$), molar ratio analysis (cis-1,2 DCE/PCE+TCE, PCE/TCE, TCE/PCE v. DCE/TCE, etc) contaminant modeling that model the fate and transport of PCE, TCE, DCE and/or vinyl chloride in the soil and/or groundwater, the presence or absence of acid inhibitors (acetylenic alcohols, amides, epoxides, ketones, etc), metal inhibitors (aromatic hydrocarbons, esters, sulfoxides, etc), light inhibitors (amines, nitriles, organo-metallic compounds, etc) and/or antioxidants (phenols, pyrrole, thiocyanates, etc) in the chlorinated solvent, and degradation product ratio analysis.[1,4,5,6,7,8,9,10] From the evidence available, it appears that no scientifically defensible forensic analysis has been performed that would allow the identification of when chlorinated solvents were released at the facility. A significant limitation in the application of many of these forensic techniques is that the original composition, location, and mass of the liquid released are required.

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[1] "Chlorinated Solvents: Chemistry, History and Utilization for Source Identification and Age Dating." Chapter 7. Introduction to Environmental Forensics. B. Murphy and R. Morrison (Eds). Elsevier Academic Press. 2004.
[4] Environmental Forensics: Principles and Applications. Robert Morrison. CRC Press. 1999.
[5] Morrison, R., 2000. Critical review of environmental forensic techniques. Part I. Environmental Forensics. 1(4), 157-173.
[6] Morrison, R., 2000. Critical review of environmental forensic techniques. Part II. Environmental Forensics. 1(4), 175-195.
[7] Mohr, T., 2001. Solvent stabilizers. White Paper. Prepublication Paper. June 14, 2001. Santa Clara Valley Water District. Underground Storage Tank Program, Water Supply Division. Pg. 52.
[8] Morrison, R., 2001. Chlorinated solvents and source identification. *Environmental Claims Journal*. 13(3), 95-104.
[9] Morrison, R., 2003. PCE contamination and the dry cleaning industry. *Environmental Claims Journal*. 15(1), 93-105.
[10] Gauthier, T.D. and Murphy, B.L., 2003. Age Dating Groundwater Plumes Based on the Ratio of 1,1-Dichloroethylene to 1,1,1-Trichloroethane: An Uncertainty Analysis. *Environmental Forensics* ,4:205-213.

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There is no evidence available to identify the specific date of a chlorinated solvent release. A 1989 report titled Environmental Risk Assessment Summary by Versar, Inc., for example, stated that there had been no releases reported at the facility.[11] In a 2003 Site Investigation Report by Maxim Technologies, it was further noted that no releases of chlorinated solvents had been recorded at the facility since 1992.[12] In a certified copy of the defendants Spill Prevention, Control and Countermeasures submitted to the USEPA in 1995, Brenntag certified that the facility had not experienced a release reportable under 40 CFR, Part 100 in the history of the operation of the facility.[13] In response to a Request for Information pursuant to Section 104(e) of CERCLA in 2000, certified by defendants as true, accurate and complete, eleven releases were listed, none of which were chlorinated solvents.[14] In a Second Request for Information, the defendants certified that it had performed a thorough, complete and accurate investigation regarding releases of chlorinated solvents into the subsurface. As part of that investigation, defendants interviewed 19 former and current site employees regarding their knowledge of spills from the site. Those 19 individuals interviewed included various employees from 1972 to 2000. None of the individuals interviewed had any knowledge of any reportable quantity release of PCE or TCE into the environment.[15]

Opinion 2. Subsurface contamination at the site is the result of routine storage and handling practices.

The basis for this opinion includes the historical storage and handling of chlorinated solvents at the site, the presence and distribution of chlorinated solvents in the subsurface and reports of routine releases.[16,17,18]

PCE has been stored in bulk and transferred into smaller containers at the site.[14] According to the defendants 104(e) responses, chlorinated solvents have historically been received in bulk at the site via tank trailers and truckloads and then transferred into smaller containers. Witness testimony indicates that chlorinated solvents may also have been received by railcar at some point in time.[19] From 1989 to 1999, the defendants reportedly sold 87,782 and 22,918 gallons of PCE and TCE from the site, respectively.[14] During the transfer of solvents from bulk containers and into smaller containers, the

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[11] Environmental Risk Assessment Survey Dyce Chemical Company Billings, Montana. Technical Report. Versar, Inc. September 25, 1989. Submitted to Holchem, Inc.
[12] Site Investigation Report Dyce Chemical Facility Lockwood, Montana. Maxim Technologies, Inc. October 3, 2000. D049875-050344.
[13] Spill Prevention, Control and Countermeasure (SPCC) Plan for Dyce Chemical, SPCC Number M93005. Submittal from David Werne to Martha Wolf. July 31, 1995.
[14] First Request for Information Pursuant to Section 104(e) of CERCLA from Suzanne Miller. March 1, 2000. D002206-002435.
[15] Second Request for Information Pursuant to Section 104(e) of CERCLA from Suzanne Miller to Rosemary Rowe. July 23, 2000. D002437-002456.
[16] Dyce Chemical. Product List. D001848-001857.
[17] Remedial Investigation Report Lockwood Solvent Groundwater Plume Site. Tetra Tech, EM Inc., June 2003. Prepared for the Montana Department of Environmental Quality.
[18] Final Report VOC Groundwater Plume Delineation and Potential Source Area Assessment Lockwood Solvent Site – Larsond Lane Area Lockwood, Montana. 1999. Lockheed Martin/REAC D058018-058292.
[19] Deposition testimony of Marvin Johnson, August 29, 2001. *Weiss et al. v. Dyce Chemical, Inc. et al.*

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opportunity for a release(s) exist. Releases from the handling of chlorinated solvents at the site were noted as early as 1989 by Versar, Inc. in a report to the defendants. Versar recommended to the defendants in 1989 that they eliminate minor releases associated with disconnecting product transfer hoses.

The Record of Decision by the State of Montana Department of Environmental Quality (MDEQ) and the United States Environmental Protection Agency (USEPA) of August 2005 concluded that concentrations of PCE in groundwater suggest historic releases associated with the storage and handling of PCE, including the source areas located at the northwest corner of the site, the Main Tank Farm and the Acid Tank Farm.[20] The source areas identified by MDEQ and USEPA are consistent with reported handling practices that permitted routine discharges of PCE in these areas.

Northwest Corner of the Site

The presence of chlorinated solvents in the northwest corner of the site is consistent with the reported use of this area for the routine discharge of waste water onto soil. Defendants 104(e) responses certified that defendants discharged waste water into the pasture. Marvin Johnson, an employee at the site from 1980/1981 to 1988, testified that a pipe was placed in a catch pond on the site that allowed liquid in the pond to drain into the surrounding pasture.[19] The presence of PCE in shallow soil samples in this area is consistent with the discharge of waste water containing PCE into this area. Examples include the detection of PCE in soil at stations PT001 (304 mg/kg), PT002 (2,040 mg/kg), PZ008 (992 mg/kg), PZ010 (1,290 mg/kg), MP139 (168 mg/kg), PZ011 (520 mg/kg) and PZ019 (546 mg/kg)[20,21],[22] A non-aqueous phase liquid (NAPL) source of PCE was also indicated in this area at a depth of about 8-14 feet where a PCE concentration of 2,000 mg/kg in saturated soil was detected.

While liquid from the catch pond was not routinely tested for chlorinated solvents, two samples were collected and tested in 1985, when the company management considered discontinuing use of the pond. The results of this analysis indicated the presence of low levels of volatile hydrocarbons, although no attempt was made to identify their composition.[23] In 2000, liquid from two evaporation pits designed to accumulate rinse water and releases from the site were collected and analyzed for volatile organic compounds. Samples from these evaporation pits detected PCE and other chlorinated solvents, including DCE.[24,25] Water from these evaporation pits was discharged to the pasture in the northwest portion of the site.

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[20] Record of Decision Lockwood Solvent Groundwater Plume Site Billings, Montana. Montana Department of Environmental Quality and the United States Environmental Protection Agency. August 22, 2005.
[21] Final Feasibility Study Lockwood Solvent Groundwater Plume Site. July 6, 2004. Tetra Tech EM, Inc. prepared for the Montana Department of Environmental Quality.
[22] Final Addendum 01 to the Final Remedial Investigation Report. Lockwood Solvent Groundwater Plume Site Yellowstone County, Montana. December 2003. Tetra Tech EM, Inc. Prepared for the Montana Department of Environmental Quality.
[23] Sampling Report, Kaivos Research. June 22, 1985. D001863-001895.
[24] Laboratory Test Results Sample No. 2000060202-1 West Slope. Northern Analytical Laboratories. D002151-002161; Laboratory Test Results Sample No. 2000060148-1 East Slope Pit. Northern Analytical

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The presence of a PCE NAPL in soil and groundwater in this area is consistent with reported releases of liquid from the used drums stored in this portion of the site. Richard Brill, an employee from 1988 to 1994, testified that steel drums returned from customers were stored in the back of the property against the fence.[26] Mr. Brill testified that with management's knowledge, that he and others would regularly discharge any remaining liquid inside the steel drums onto the ground before they were loaded onto the drum reconditioners trucks. Craig Guelff, an employee from 1990 to the present, testified that barrels were dumped onto the ground prior to loading.[27] This practice was common and would in some cases involve the dumping of as many as 100 barrels per occasion.

Main Tank Farm

The Main Tank Farm is identified by MDEQ and USEPA as a source area. The presence of chlorinated solvents in this area is consistent with witness testimony of routine releases arising from PCB storage and handling activities in this area. The 4,000 gallon tank that stored PCE, Tank(s) 51/104, was located adjacent to the drumming shed in the Main Tank Farm. Dave Warne, branch manager of the site from 1992 to present, recently testified that he did not know whether the bulk PCE tank was still on the property.[28] Richard Brill testified that chlorinated solvents were routinely unloaded from drum tank trucks into the above ground storage tanks in front of the drumming shed.[26] Ken Kjos, an employee from 1986 to 1994, testified that PCE would be off loaded from tank trucks adjacent to Tank 51. Mr. Kjos testified that he witnessed PCE releases during off loading several times.[29] Soil samples collected in the vicinity of the Tank 51/104, the drumming shed and the truck unloading area detected PCE in the shallow soil. Examples include soil samples collected from sampling stations MP103, SB103 and MP104. Soil collected from sample location MP104 and analyzed for chlorinated solvents, detected PCE at a depth of 0-2 and 6-8 feet at concentrations of 260 and 4,670 mg/kg, respectively. Both of these samples exhibited a strong solvent odor when sampled. The PCE at a concentration of 4,670 mg/kg collected from a depth of 6-8 feet indicates the presence of a NAPL source of PCE.[30]

Maxim Technologies, Inc. collected groundwater samples adjacent to the location of MP104 and designed this location BHM. Chlorinated solvents detected in groundwater

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Laboratories, Inc. D002145-002150; Laboratory Test Result Sample No. 00-00-52408. West Slope. Energy Laboratories, Inc. D002107-002111. Laboratory Test Result Sample No. 001-00-52408. West Slope. Energy Laboratories, Inc. D002107-002111.

[25] Laboratory Test Results, Date Sampled 1/19/2000, West Slope, Energy Laboratories, Inc. D002091-002096.

[26] Deposition testimony of Richard Brill February 12, 2003. *Weiss et al. v. Brenntag West, Inc. et al.*

[27] Deposition testimony of Craig Guelff, November 4, 2002. *Weiss et al. v. Brenntag, Inc. et al.*

[28] Deposition testimony of Dave Warne, August 17, 2005. *United States Fidelity and Guaranty Company et al. v. Seco-West, Inc., Brilliant National Services, Inc. (f/k/a Brenntag, Inc.), Stinnes Corporation and Brenntag (Holding) N.V.*

[29] Deposition testimony of Ken Kjos, August 30, 2001. *Weiss et al. v. Dyce Chemical, Inc. et al.*

[30] Pankow, J.F. and Cherry, J.A., 1996. Dense Chlorinated Solvents and other DNAPLs in Groundwater. Waterloo Press, Portland Oregon.

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from BHM ranged from 173 to 86,000 ug/l for DCE along with high concentrations of toluene (210,000 ug/l).[12] The presence of chlorinated solvents and toluene in groundwater at these concentrations are consistent with reported routine releases from loading and unloading activities in this area.

Acid Tank Farm

The Acid Tank Farm is the third source location identified by MDEQ and USEPA. The Acid Tank Farm was the approximate location of a historic, unlined storm and rinse water pond that was used until at least 1985. Defendants reported to the USEPA in their Second Request for Information Pursuant to Section 104(e) of CERCLA that they believed that the unlined pond collected rinse water from pumps and transfer hoses.[19] Marvin Johnson testified that the pond received water and chemicals that had been released or were rinsed out which were then conveyed to this pond via ditches that were partly concrete lined and partly exposed soil. This information is consistent with the detection of PCE at elevated concentrations in groundwater in the Acid Tank Farm, including a groundwater sample from MP105 (2,960 ug/l) and a groundwater sample collected from BHF from Maxim Technologies that contained PCE at a concentration of 13,000 ug/l. These PCE concentrations are indicative of a PCE NAPL source at the Acid Tank Farm and the collection and migration of rinse water from the unlined collection pond.

Opinion 3. The distribution of subsurface contamination at the Brenntag West facility is inconsistent with a single release of PCE.

The distribution of PCE (dissolved and NAPL) in the groundwater and in the soil is inconsistent with a single release of PCE. The evidence relied upon for this opinion includes the PCE plume geometry in groundwater, the presence of at least three discrete sources of NAPL and the identification of numerous locations where the presence of PCE in soil above the groundwater table is indicative of multiple surface releases.

The classic contaminant plume geometry from a single release of a contaminant entering the groundwater is elliptical or "tear shaped" with the apex of the tear situated at the location where the contaminant enters the groundwater. The contaminant concentration is highest at the location where the contaminant enters the groundwater and decreases with distance from the source area. The geometry of the PCE plume at the Brenntag site is inconsistent with the shape of the PCE plume in groundwater as well as the presence of at least three sources of NAPL (northwest portion of the property, the Main Tank Farm and the Acid Tank Farm) which normally indicate a release of the NAPL in the immediate vicinity. A single release of PCE does not account for these three NAPL source areas.

PCE has also been detected in numerous locations in soil situated above the groundwater table. Tetra Tech EM, Inc., in their July 6, 2004 Final Feasibility Study of the Lockwood Solvent Groundwater Plume Site identified 21 separate locations where chlorinated solvents above their site specific screening level for soil were identified. If the source of the chlorinated solvents at the facility had been from a single release of PCE, the

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presence of PCE in shallow soil would not be present above the groundwater table, excluding the area where the release occurred.

Conclusions

It is my understanding that discovery is ongoing in this matter and that if additional information relevant to these opinions is produced and reviewed, that a right to supplement this report is preserved.

Robert D. Morrison

Sept. 6 2005
September 6, 2005

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B

Rebuttal Report of Robert D. Morrison

United States Fidelity and Guaranty Company et al. v. Soco-West, Inc., Brilliant National Services, Inc. (f/k/a Brenntag, Inc.), Stinnes Corporation and Brenntag (Holding) N.V.

United States District Court
District of Montana
Billings Division
Cause No. CV-04-29-BLG-RFC

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DATE 1/4/06
CYNTHIA DEPATO, CSR #7280

2501-1

DEFENDANTS' 3/23/06 MOTION IN LIMINE # 3

ATTACHMENT B

Rebuttal to Rule 26(a)(2)(B) Report of Robert H. Harris

Introduction

This rebuttal report to the report of Dr. Robert Harris was prepared at the request of plaintiffs' counsel in the matter of *United States Fidelity and Guaranty Company et al. vs. Soco-West, Inc., Brilliant National Services Inc. (f/k/a Brenntag, Inc.), Stinnes Corporation and Brenntag (Holding) N.V.*, United States District Court, District of Montana, Billings Division Cause No. CV-04-29-BLG-RFC. This matter involves the contamination of soil and groundwater at and adjacent to a facility operated by Brenntag West (formerly Dyce Chemical, Inc.,) (defendants) facility (site) located at 1353 Taylor Place in Billings, Montana. This rebuttal report supplements opinions and evidence included in my expert witness report of September 6, 2005.

Rebuttal Opinions

I have reviewed the expert report of Dr. Robert Harris submitted on behalf of defendants in this matter.[1] Of note is opinion 3 of the Harris report that states:

Deposition testimony indicates that a spill of 250 to 1,000 gallons of PCE occurred at the Dyce Site's bulk loading/unloading area between 1975 and 1977. Such a spill is consistent with the investigative data and presents the most likely explanation of the DNAPL PCE contamination found in the Dyce Site's Northwest Corner.

Mr. Harris opines that a PCE release in the loading/unloading area during this time frame would flow to the west of the Main Tank Farm to the railroad spur, then along two drainage ditches that terminated in the northwest corner.

Evidence developed in this case does not support this opinion. Information and data examined that is contrary to this opinion includes the following groups of evidence:

- Distribution of contaminants in the soil and groundwater in the Northwest Corner of the site;
- Drainage patterns from the loading/unloading area to the Northwest Corner;
- Filings to the United States Environmental Protection Agency and environmental reports, and
- Deposition testimony regarding a PCE release(s).

Distribution of Contaminants in the Soil and Groundwater in the Northwest Corner

[1] Rule 26(a)(2)(B) Report of Robert H. Harris. *United States Fidelity and Guaranty Company et al. vs. Soco-West, Inc., Brilliant National Services Inc. (f/k/a Brenntag, Inc.), Stinnes Corporation and Brenntag (Holding) N.V.*, United States District Court, District of Montana, Billings Division Cause No. CV-04-29-BLG-RFC.

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The presence and distribution of contaminants, including PCE, in the subsurface are inconsistent with a one-time sudden and accidental release of 250 to 1,000 gallons of PCE in 1975, 1976 or 1977. Evidence in support of this opinion include the distribution of PCE and BTEX compounds in soil and groundwater in the Northwest Corner, the estimated volume and timing of the PCE release, and the distribution of contaminants beneath and adjacent to the Catch Pond.

Contaminant Distribution

The presence of PCE in the soil and groundwater is inconsistent with a single release of PCE originating from the Main Tank Farm and terminating in the vicinity of the Northwest Corner due to the spatial distribution of the PCE and the ratios of various degradation products. If the PCE in the Northwest Corner was the result of a single PCE release, the distribution of PCE in the soil and groundwater would consist of a single "hot spot" with elevated concentrations of PCE. The distribution of PCE in the Northwest Corner, however, consists of many areas of discrete contamination and the presence and/or absence of PCE at discrete depths. For example, if the contamination in the Northwest Corner were due to a single release of PCE, the presence and absence of PCE and its degradation products as well as ratios between these compounds would be similar, which is not the case.

Mr. Harris states on page 33 of his expert witness report that:

The makeup of the contamination in the Northwest Corner indicates that it resulted from a distinct release of pure-phase PCE. No BTEX compounds were detected in any Northwest Corner groundwater sample, with the exception of one extremely low detection (less than 0.002 mg/l) of benzene.

This statement is factually incorrect. BTEX compounds were detected in groundwater in the Northwest Corner. In an investigation conducted by ATC Associates, Inc. in 2003, groundwater samples taken from the northwest portion of the site revealed BTEX concentrations in a majority of the samples (Table 1.).[2,3]

Table 1. Groundwater Analytical Results.

		Volatile Organic Compounds		
Sample ID	Collection Date	Benzene (ug/L)	Toluene (ug/L)	o-Xylene (ug/L)
PZ-02	08/08/03[a]	3.8 (1.0)[a]		
PZ-03	08/08/03	3.4 (1.0)		
PZ-08	08/08/03	0.52 J[b] (1.0)		
PZ-09	08/08/03	3.7 (1.0)		0.37 J (1.0)

[2] Ozone Sparging/ Soil Vapor Extraction Pilot Test Report Brenntag West. ATC Associates, Inc. November 13, 2003. D043612-044032.
[3] Soil and Groundwater Data Remedial Investigation Summary Report. ATC, Associates, Inc. November 13, 2003. D043358-043610.

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PZ-10	08/08/03	1.9 (1.0)	1.0 (1.0)	
PZ-11	08/11/03[c]	4.2 (1.0)	32 (10)	
PZ-12	08/11/03	3.4 (1.0)	10 (1.0)	
PZ-14	08/11/03	3.0 (1.0)	7.0 (1.0)	
PZ-15	08/11/03	3.6 (1.0)	28 (10)	
PZ-16	08/11/03	5.8 J (10)	37 (10)	
PZ-17	08/11/03	0.48 J (1.0)		
PZ-18	08/11/03	0.79 J (1.0)		
PZ-19	08/08/03	1.9 (1.0)		
PT-02	08/28/03[c]	1.3 (1.0)	1.3 (1.0)	
PT-03	08/28/03	1.4 (1.0)	1.1 (1.0)	
PT-05	08/28/03	2.3 (1.0)	2.4 (1.0)	
PT-07	08/28/03	3.6 (1.0)	14 (1.0)	
PT-08	08/28/03	4.7 (1.0)	24 (10)	0.52 J (1.0)

a. The number within the parenthesis indicates the analyte reporting limit.
b. J indicates an estimated value. The analyte was present but less than the reporting limit.
c. Samples dated August 8, 2003, August 11, 2003 and August 28, 2003 were collected after the operation of the ozone sparging/soil vapor extraction system.

The presence of BTEX compounds in groundwater samples in the Northwest Corner along with PCE is consistent with releases of liquid from the Catch Pond and/or releases of liquids containing PCE and BTEX compounds associated with the handling and storage of chemicals.

Estimated Volume and Timing

In support of the volume and timing of the alleged incident, Mr. Harris states on page 11 that:

Available investigative data indicate that an early release of PCE into the groundwater resulted in the PCE groundwater contamination found downgradient of the site. An analysis conducted on behalf of the USEPA in 1999 concluded that the PCE plume downgradient of the Dyce Site originated from a release of PCE into the groundwater that had occurred a minimum of 10 to 15 years earlier.

The report referenced by Dr. Harris is the Final Report VOC Groundwater Plume Delineation and Potential Area Assessment, prepared by Lockheed Martin/REAC dated December 2, 1999. In the portion of the report that deals with the volume and timing of PCE releases (Section 3.3), the text states that "*This section attempts to calculate the approximate volume of the release of PCE and estimates the approximate age of the groundwater VOC plume. Assumptions have been made and therefore care should be exercised when using these calculations for anything more than discussion purposes.*" Further in this section, the text reads "*The concentration of the parent compound (PCE) near the potential source area appears to be decreasing, as the highest VOC concentrations are present downgradient (Plate 3). This indicates that the plume age is likely to be an additional 5 to 10 years, for an approximate speculated minimum age of 10 to 15 years.*"

In addition to these considerations, the Lockheed Martin/REAC report bases its age dating and volume estimates on a contaminant plume 3000 feet in length, 1000 feet wide and 20 feet deep and an estimated groundwater velocity of 650 feet per year. However,

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the PCE contaminant plume from the Brenntag facility to the Yellowstone River is no more than about 2000 feet in length as stated in the Record of Decision by the Montana Department of Environmental Quality and the U.S. Environmental Protection Agency in 2004.[4] This discrepancy in the length of the contaminant plume in groundwater alters the speculated age of the contaminant plume (less than 10 to 15 years) and the estimated 200 gallons of the PCE released in the Lomond Lane area.

In addition, numerous assumptions regarding groundwater transport velocities are also made in these estimations, including preferential channels transmitting contaminants faster in gravels relative to sand/silt/clay portions of the alluvium and pumping activities that artificially accelerate the downgradient migration of contamination. An example is the AJ gravel pit that historically was pumped as much as three times a year in four or five week intervals at rates of as much as 300,000 gallons per hour. All of these factors introduce significant uncertainty in any attempt to age date the PCE release or estimate the volume of PCE in the soil and groundwater.

Distribution of Contaminants at and Adjacent to the Catch Pond

The presence of PCE in the Northwest Corner is most consistent with releases of historic storm and rinse water that drained to the Catch Pond as well as releases from subsequent ponds. Defendants certified to be true, accurate and complete, in a response to a Request for Information pursuant to Section 104 (e) of CERCLA in 2000, that a historic storm and rinse waste water unlined pond was in use when Dyce Chemical purchased the property and use was discontinued in approximately 1985.[5] Testimony from Marvin Johnson acknowledged that behind the main tank farm there was a Catch Pond which would collect spills, rinse water, precipitation and melting snow, resulting in the Catch Pond filling with water.[6] Mr. Johnson also testified that the pond would sometimes fill up from precipitation which would lead to the draining of the pond into the adjacent pasture northwest of the Catch Pond. Precipitation records from 1972 to approximately 1985 in the Billings area indicate higher than average annual precipitation values that are consistent with drainage from the Catch Pond into the Northwest Corner during this time frame.[7]

According to Marvin Johnson's testimony, the Catch Pond was lined with a plastic lining which was deteriorated and cracked. It was subsequently lined with bentonite and gunite. Suzanne Miller also testified that the Catch Pond was lined with bentonite and gunite.[8] In addition, Richard Colver, employed at the site from 1974/1975 to 1994, testified that the Catch Pond was lined with bentonite when he first became employed in

[4] Record of Decision Lockwood Solvent Groundwater Plume Site. Montana Department of Environmental Quality and U.S. Environmental Protection Agency. August 17, 2005.
[5] First Request for Information Pursuant to Section 104(e) of CERCLA from Suzanne Miller. March 1, 2000. D002206-D002435.
[6] Deposition testimony of Marvin Johnson, August 29, 2001. Weiss et al. v. Dyce Chemical, Inc. et al. D032528-032609.
[7] Western Regional Climate Center. 2005. http://www.wrcc.dri.edu/index.html
[8] Deposition testimony of Suzanne Miller, Volume III, October 22, 2001. Weiss et al. v Dyce Chemical, Inc. et al. D031619-031670

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1974 and was subsequently lined with gunite.[9] Whether the Catch Pond was unlined as documented in the CERCLA 104(e) response or if it was lined and required relining, its absence of a liner or lack of integrity is consistent with liquids to migrate from the pond and into the underlying soil and groundwater.

In support of the leakage of fluids from the Catch Pond and into the underlying groundwater, a map identifying the approximate location of the Catch Pond indicates that groundwater monitoring well MW102 was located adjacent or under the former Catch Pond.[10] Chlorinated solvents detected in MW102 on 8/15/02, for example included TCE (22 ug/l), DCE (1290 ug/l) and vinyl chloride (65 ug/l). Benzene (0.61 ug/l), toluene (29 ug/l), ethylbenzene (3.1 ug/l) and total xylenes (4.8 ug/l) were similarly detected in groundwater from MW102 on 8/15/02. The presence of these contaminants below the former Catch Pond is consistent with the historical leakage of these compounds from the Catch Pond.

In addition, fluids containing chlorinated solvents were released from evaporation ponds into the Northwest Corner of the site after the discontinuance of the use of the Catch Pond in about 1985. Suzanne Miller testified that in the early 1990's, liquid from evaporation ponds in the Northwest Corner of the site were discharged into the surrounding property. Prior to discharge, the pond water was tested for total petroleum hydrocarbons and pH. This testing was performed intermittently commencing in the early 1990s and subsequently tested on a more regular basis in the mid to late 1990's.[5,8] Chlorinated solvents were not tested for until the late 1990's, excluding one or two discrete occasions.[8] Samples tested for chlorinated solvents and benzene components in pond water in June of 2000, for example, detected PCE, xylenes, toluene and ethylbenzene.[11] Water that was judged to be acceptable was discharged from the sloped and evaporation ponds into the pasture in the Northwest Corner behind the working fenced area of the facility.[5,12] However, a sample taken on April 4, 2000, detected PCE, m+p-xylenes and o-xylene at concentrations of 3.7 ug/l, 4.7 ug/L and 1.6 ug/L, respectively.[13] This water was discharged to the pasture.[12] In addition, two samples collected from the waste water tank on May 30, 2000 and May 18, 2000 detected PCE, ethylbenzene, toluene, m+p-xylenes, and o-xylene. This water was also discharged to the pasture.[12,13]

While not tested for chlorinated solvents or the BTEX compounds, water was discharged from the evaporation ponds with enriched concentrations of total petroleum hydrocarbons in the late 1990s. On May 14, 1999, for example, an unfiltered sample from the east sloped pit detected total petroleum hydrocarbons at a concentration of 4,200 ug/l; approximately 5000 gallons of this liquid was discharged into the pasture. Table 2 lists

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[9] Deposition testimony of Richard Colver. August 31, 2001. Weiss et al. v. Dyce Chemical, Inc. et al. D032610-032668.
[10] Remedial Investigation Report Lockwood Solvent Groundwater Plume Site. Tetra Tech EM, Inc. June 2003.
[11] Northern Analytical Laboratories, June 14, 2000. Analysis of Water Sample from East Slope Pit. D002147-002148.
[12] Pit Water Stenographic Note Book. D006724-004952.
[13] Volatile Organics Analysis Report. Energy Laboratories, Inc. April 14, 2000. D002113-D002134.

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additional examples of discharges containing total petroleum hydrocarbons from the evaporation ponds and into the pasture from 1997 to 1999. In 1998, 96,000 gallons of water were discharged into the pasture from the evaporation ponds and in 1999 a total of 102,000 gallons of water were discharged into the pasture from evaporation ponds.[12]

Table 2. Concentration of Total Petroleum Hydrocarbons in Water Discharged to Pasture from Evaporation Ponds from 1997-1999.[12]

Date	TPH Concentration (mg/l)	Volume Discharged to Pasture (gallons)
1997		
4/17/97	7.1	3,500
4/18/97	3.0	3,500
4/30/97	2.4	6,000
5/1/97	9.9	6,000
7/8/97	5.8-6.2	Unreported
8/18/97	<0.1-7.4	12,000
9/24/97	2.9	6,000
10/8/97	2.0	6,000
10/17/97	6.8	6,000
1998		
1/28/98	9.7	5,000
2/5/98	11.1	5,000
2/9/98	4.7	5,000
3/16/98	4.4	5,000
3/31/98	4.1	5,000
3/31/98	9.6	5,000
5/12/98	1.3	5,000
6/2/98	1.6	5,000
6/12/98	7.5	6,000
11/4/98	1.8	5,000
12/10/98	8.2	6,000
1999		
3/9/99	11	6,000
3/24/99	2.9	5,000
4/15/99	1.8	5,000
4/27/99	1.6	5,000
5/25/99	4.2	5,000
8/11/99	3.3-3.8	10,000
9/7/99	0.5	5,000
10/15/99	2.0-4.3	10,000
11/24/99	3	5,000

While samples listed in Table 1 were not tested for chlorinated solvents or BTEX compounds, there is a high probability that some volume of these waters contained these contaminants. This practice, in addition to the migration of contaminated liquids from the Catch Pond prior to 1985, is consistent with the distribution of PCE in the Northwest Corner of the site.

Drainage Patterns from the Loading/Unloading Area to the Northwest Corner

Mr. Harris states that deposition testimony and historic aerial photographs provided the evidence in support of the proposition that a PCE release in the truck loading/unloading area would flow to the Northwest Corner.

In the Second Request for Information Pursuant to Section 104(e) of CERCLA, Dyce reported "Between 1972 and 1985 any large quantity of spilled product would likely have drained into the tank farm cement containment area. The slope of the area is such that drainage goes into these containment areas".[15] This response to EPA is contrary to the drainage patterns cited by Mr. Harris and inconsistent with a PCE release flowing from the alleged PCE release in the loading/unloading area into the Northwest Corner.

Filings to the United States Environmental Protection Agency and Environmental Reports

The alleged release of 250 to 1,000 gallons released between 1975 and 1977 is inconsistent with submittals to regulatory agencies. In a certified copy of the defendants Spill Prevention, Control and Countermeasures submitted to the USEPA in 1995, Defendants certified that the facility had not experienced a release reportable under 40 CFR, Part 100 in the history of the operation of the facility.[14] Defendants also certified in response to a Request for Information pursuant to Section 104(e) of CERCLA in 2000, that eleven releases occurred at the facility, none of which were chlorinated solvents.[5] In a Second Request for Information, the defendants certified that they had performed a thorough, complete and accurate investigation regarding releases of chlorinated solvents into the subsurface. As part of that investigation, defendants interviewed 19 former and current site employees regarding their knowledge of spills from the site. Those 19 individuals interviewed included various employees from 1972 to 2000. None of the individuals interviewed had any knowledge of any reportable quantity release of PCE or TCE into the environment.[15]

A number of environmental reports conducted at the site stated that no releases were reported for the site. In a 1989 report titled Environmental Risk Assessment Summary by Versar Inc., it was stated that there had been no releases reported at this facility.[16] It was also noted in a 2000 Site Investigation Report by Maxim Technologies, that no releases of chlorinated solvents had been recorded at the facility since 1992.[17]

Deposition Testimony Regarding a PCE Release(s)

To my knowledge, the only individual providing deposition testimony regarding the alleged PCE release is Mr. Desmond Slater who was deposed on August 16, 2005.

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[14] Spill Prevention, Control and Countermeasures (SPCC) Plan for Dyce Chemical, SPCC Number M93005. Submittal from David Warned to Martha Wolf. July 31, 1995.
[15] Second Request for Information Pursuant to Section 104(e) of CERCLA from Suzanne Miller to Rosemary Rowe. July 23, 2000. D002437-002456.
[16] Environmental Risk Assessment Survey Dyce Chemical Company, Billings, Montana. Technical Report. Versar, Inc. September 25, 1989. Submitted to Holchem, Inc.
[17] Site Investigation Report Dyce Chemical Facility Lockwood, Montana. Maxim Technologies, Inc. October 3, 2000. D049875-050344.

Mr. Slater worked at Dyce Chemical from the summer of 1976 through the fall of 1976. Mr. Slater recalls observing Mr. Dick Bender washing the asphalt pavement near the Main Tank Farm which is located about 75-100 feet away from his observation point. Mr. Slater recalls that after viewing Mr. Bender hosing the asphalt with water that he returned to the building containing the lunch room. The time spent by Mr. Slater viewing this alleged incident lasted about 30 seconds.[18]

Mr. Slater did not testify that the material released was PCE. Mr. Slater observed Mr. Bender washing down a clear liquid with water near the Main Tank Farm. He could not recall whether the spilled liquid had an odor. PCE is characterized as having a strong ether-like odor.[5] When questioned on three separate occasions during his deposition, Mr. Slater testified that he did not know what material was spilled.[18]

Mr. Slater similarly did not testify that the alleged release was between 250 and 1,000 gallons. Mr. Slater's testimony is not corroborated by other employees deposed in this matter, including Marvin Johnson (employed from 1980/1981 to 1988), Ken Kjos (employed from 1986-1994), Dick Bender, and Richard Brill (employed from 1988-1994).[6,19,20]

Conclusions

It is my understanding that discovery is ongoing in this matter and that if additional information relevant to these opinions is produced and reviewed, that a right to supplement this report is preserved.

Robert D. Morrison

10/19/05
October 19, 2005

[18] Deposition testimony of Desmond Slater, August 16, 2005. United States Fidelity and Guaranty Company v. Continental Insurance Company v. Brenntag West, Inc.; Brilliant National Services, Inc.; Stinnes Corporation; and Brenntag Holding N.V.A.
[19] Deposition testimony of Ken Kjos. August 30, 2001. D034912-034965.
[20] Deposition testimony of Richard Brill. February 12, 2003. Weiss et al. v. Brenntag West, Inc. et al. D034830-034911.

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